

SIGMA XI QUARTERLY

Vol. XVI

DECEMBER, 1928

No. 4



CHAPTER AND CLUB NUMBER

ANNUAL CONVENTION
NEW YORK, DECEMBER 28

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SIGMA XI QUARTERLY

EDITORIAL COMMITTEE

FLOYD KARKEE RICHTMYER
EDWIN EMMY SLOSSON

HENRY BALDWIN WARD
EDWARD ELLERY

VOL. XVI

DECEMBER, 1928

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EDITORIAL COMMENTS

ANNUAL CONVENTION, NEW YORK, DECEMBER 28

[SPECIAL NOTE: In the article on "Professor James Franck" in the September (1928) *QUARTERLY* and in the title under Professor Franck's photograph, the statement appeared that he is connected with the University of Berlin. That error is entirely due to the Editor of the *QUARTERLY*, and not at all to Professor Birge to whom we are indebted for the photograph and for the account of Professor Franck's work. Every one knows that Professor Franck is Professor of Physics and Director of the Second Physical Institute in the University of Göttingen, as was stated in the second paragraph of the article referred to. During the Spring Semester of 1928, Professor Franck was lecturer in Physics at the University of California and the California Chapter took that connection with the University as the basis for electing him to Sigma Xi.]

* * * * *

The 29th convention of Sigma Xi will be held in New York City, December 28, in connection with the annual meetings of the American Association for the Advancement of Science. The full program follows:

THE CONVENTION PROGRAM

4:00 P.M. Business Session.

6:00 P.M. Annual Dinner.

American Museum Nat. History, 77th St. and Cent.
Pk. West.

8:30 P.M. Seventh Annual Sigma Xi Lecture (under the joint auspices of the Association and of Sigma Xi).

Amer. Mus. Nat. History.

Lecturer: Professor Arthur Compton, University of Chicago.

Topic: What Is Light?

9:30 P.M. Reception, Educational Hall.

Chapters are entitled to a delegation of not more than three members at the convention, and the national officers urge that each chapter be represented. The hour of the business session has been put at 4 o'clock, so as to conflict as little as possible with any section meetings that may be scheduled for the afternoon.

The secretaries of the chapters have already received advance notices of the business to come before the convention, and have been requested to present the items at a chapter meeting prior to the New York gathering. Some of the items are:

1. Election of officers:

- (a) A President to serve for one year. Dr. Kellogg, elected at the 1928 convention, was unable to accept the office. Professor Moulton, former president, has continued in office and given generously of his time and ability to the affairs of the Society.
- (b) A member of the Executive Committee to serve for five years, to succeed Professor Ward whose term of office expires in January.
- (c) A member of the Alumni Committee to serve for five years to succeed Dr. Magnuson whose term of office expires in January.

2. Reports of the officers.

3. Amendment to the constitution, article VI, section 1, regarding the engraving on the Society's insignia. It is recommended that "the numeral of the year in which the chapter was chartered" be omitted from the engraving.

4. Discussion of the topic "What group of sciences does Sigma Xi represent?" based on Professor Crew's article in the March (1928) Quarterly.

5. Discussion of the topic "What Sigma Xi is doing and why" based on Mr. Sweet's article in the September (1928) Quarterly.

6. Suggestions from chapters to the national officers on the conduct of the Society's affairs.

* * * * *

All of that program is important. The national officers would like to have every chapter and every club represented at the convention, prepared and willing to participate in the discussions. In 1925, 55% of the chapters and 69% of the clubs sent delegates; in 1926, 53% and 27%; in 1927, 61% and 40%.

Can we not have in New York a closer approach to a 100% representation?

* * * * *

Dinner tickets at \$2.50 including coupon admitting to reserved seat section for the evening lecture may be reserved in advance with Mr. C. E. Davies, 29 W. 39th St., New York City, or they may be purchased at the Sigma Xi desk at the registration headquarters, December 27 and 28.

* * * * *

The abbreviated chapter reports contained in this issue are full of interest for all. They show that our chapters are active. The diversity of the programs is a superb illustration of one of the ways in which the purpose of Sigma Xi, "the promotion of research," is being realized. One cannot have this contact with the society without receiving the distinct and profound impression that the organization is composed of men and women who are actually "companions in zealous research" in pure and applied science. Especially noteworthy is the publication in permanent form by the Missouri Chapter of the addresses given under its auspices—a splendid contribution to the sum of knowledge.

* * * * *

ANNUAL CONVENTION, NEW YORK,
DECEMBER, 28

SIGMA XI IN THE WHITE HOUSE

The result of the presidential election introduces Sigma Xi into the White House for the first time in the history of the country and of the society. Both Mr. and Mrs. Hoover are members of Sigma Xi, and are contributors to the Alumni Fund for the promotion of research. The record in the office of the national secretary is as follows:

HERBERT CHARLES HOOVER—elected as alumni member, in the Stanford Chapter, 1907.

Field of work—Mining Engineer.

Address at the time of election given as General Manager, Bewick Moreing & Co., London, England.

MRS. HERBERT C. HOOVER (Lou Henry)—elected as alumna member in the Stanford Chapter, 1907.

Field of work—Geology.

Address at the time of election given as London, England.

THE GARDEN PATH

CHRISTIAN A. RUCKMICK, President Iowa Chapter, 1927-1928

A youth goes forth in merry whim
To keep appointment with the Spring,
And as he goes each living thing
Seems bent and bound to go with him.

In Spring's green garden in the glen
He spies a primrose, quaint, alone,
In raiments soft, of dainty tone,
And almost lost—there in the fen.

He stoops to pick it, leaves and all,
To pluck it rudely from its bed,
He lifts it gently out instead
And plants it near his garden wall.

And still the primrose blossoms there,
While youth has grown to be the man,
His friends come in as oft they can
The primrose, quaint, with him to share.

* * * * *

With eager eye and earnest face
The man of science long pursues
The quest—succeeding, then renews
His zealous search with quickened pace.

In Nature's garden oft he finds
A treasure trove that he would keep
All for himself so he might reap
Its pleasure, far from other minds.

But God's own garden he has trod,
A precious truth he there has found,
Transplanted now in friendly ground,
His truth, man's truth, the truth of God.

O'er garden paths we stroll in thought
While wise men plant with loving care
The thoughts of God now gathered where
Mankind may learn what He has wrought.

CHAPTER REPORTS

MINNESOTA

The Minnesota Chapter chose as the topic for its meetings during the year, "The Measurement of Mankind," and offered four lectures by members of the University Faculty as follows:

"The Measurement of Man in the Mass," by Prof. J. Arthur Harris.

"Body Growth in Infancy and Childhood," by Prof. R. E. Scammon.

"Normal and Abnormal Human Types," by Prof. C. M. Jackson.

"Mental Development in Relation to Physical Development and Types," by Prof. D. G. Paterson.

The lectures were given in the Botany Building and were open to the public.

The Initiation and Annual Dinner took place at the Minnesota Union. Professor Arthur Compton of the University of Chicago who was to give an address on "What Things Are Made of" was prevented by illness in his family from keeping the appointment. Dean Ford of the University gave an address on "What Price Science" and Professor Lind one on "Our Helium and Radium Resources."

J. H. VAN VLECK, *Secretary*

NEBRASKA

The Chapter held six meetings during the year at which addresses were given as follows:

"Food and Nutrition Problem in the Orient," D. W. H. Adolph.

"Research in Analysis," Dr. C. C. Camp.

"Various Phases of Sedimentation," Dr. A. H. Lugn.

"Departmental Meetings," Dr. W. J. Himmel.

"Interesting Remarks," Dr. E. Stauss.

"World Dust," Dr. E. H. Barbour.

"Lines of Research Carried Out in the Department of Chemistry," Dr. F. W. Upson.

"On the Fjords and Fjelds of Gamle Norge," Dr. R. J. Pool.

"The Creative Artist in Research," Dr. G. L. Wendt.

"Physiologic Specialization in Fungi," Dr. E. C. Stakman.

In addition to these the Chapter held a business meeting for the election of officers and new members, and the annual initiation and banquet.

E. N. ANDERSEN, *Secretary*

IOWA

During the year the Iowa Chapter gave what it called "soirée programs," four in number, as follows:

First. (Department of Chemistry.)

Introduction: "The Graphical Distribution of University of Iowa Graduates in Chemistry," Professor Edward Bartow.

"A Research on Human Blood," Professor E. W. Rockwood.

"The Results of Studies of the Adsorption of Vapors by Charcoal," Professor J. N. Pearce.

"The Effect of Substituents in the Phenyl Radical on the Rearrangement of Hydrazones into Pyrazolines," Professor C. L. Raiford.

"The Results of Critical Studies of Analytical Methods," Professor Stephen Popoff.

Second. (Department of Mathematics and Astronomy.)

"Some Properties of a Class of Curves," Professor Roscoe Woods.

"On the Physical Properties of the Tilden Meteor," Professor C. C. Wylie.

"Summability of Series Related to Fourier Series," Dr. N. B. Conkwright.

"The Problem of Packing," Professor R. P. Baker.

"Relations between Three Fundamental Properties of Abstract Sets," Professor E. W. Chittenden.

Third. (Department of Zoology.)

"Studies on Growth and Death in Lower Animals," Professor L. A. Brown.

"The Mechanism of Amphibian Metamorphosis," Professor O. M. Helff.

"Studies on the Vascular System of Turtles," Professor F. A. Stromsten.

"Studies on Internal Secretion," Professor W. W. Swingle.

"Studies in Animal Behavior," Professor W. W. Tuttle.

"The Effect of Acidosis in Tetany," Professor W. F. Wenner.

"Studies in Sex-determination and Sex-differentiation," Professor Emil Witschi.

Fourth. (Department of Medicine.)

"The Effect of External and Internal Applications of Heat and Cold on the Muscular Activity of the Alimentary Canal of the Unanesthetized Dog," Professor H. V. Atkinson.

"The Effect of the Rate of Stimulation, Strength of Stimulus, Summation and Re-enforcement on the Rate of the Conduction of a Nerve Impulse through Reflex Arcs," Professor W. W. Tuttle.

"Progress Studies in Diabetes in Childhood," Dr. J. D. Boyd.

"Tularemia," Professor H. D. Palmer.

"The Hand, an Anatomical Study and Demonstration," Professor H. J. Prentiss.

The "soirées" were preceded by a general meeting, addressed by the retiring president, Professor P. A. Bond, who spoke on "Factors Governing Solubility."

At the annual initiation and banquet Prof. Arthur Compton of the University of Chicago gave an address on "What Things Are Made of."

G. H. COLEMAN, *Secretary*

STANFORD

During this year of the Chapter's activities, three meetings were held in the interest of research, apart from meetings devoted to the election and the initiation of members:

1. A joint meeting with the Science Association. Prof. H. L. van de Sande Bakhtynsen lectured on "New Viewpoints on the Growth of Plants."

2. In joint meeting with the Science Association, Professors F. T. MacFarland and E. G. Martin spoke on the history and activities of the Hopkins Marine Station of Stanford University.

3. Professor H. A. Kramers, Professor of Theoretical Physics at the University of Utrecht, Holland, lectured on "The Principle of Casuality in Modern Physics," before a joint meeting of the Society with the Science Association.

GILBERT M. SMITH, *Secretary*

CALIFORNIA

During the year the California Chapter held eight meetings with addresses as follows:

Dr. A. O. Leuschner, "The Pons-Winnecke Comet."

Dr. J. N. Force, "California Performs an Experiment in the Epidemiology of Smallpox."

O. B. Ralston, "The Powers of Mud."

Dr. J. A. Marshall, "Biological Factors Related to Dental Disease."

Dr. W. D. Matthew, "Some of the Causes Underlying the Evolution of Land Animals in Geological Times."

Dr. Wm. C. Bray, "The Fixation of Nitrogen."

Dr. S. C. Brooks, "The Electrical Properties of Living Cells."

Pres. R. T. Birge, "The Structure of Molecules."

The Chapter elected 56 members and 115 associates. An illustrious candidate was Professor Franck of the University of Göttingen, lecturer in Physics at the University during the Spring Semester.

T. D. BECKWITH, *Secretary*

CHICAGO

Four regular meetings were held during the year, the lecturers and topics being:

Professor A. A. Michelson, "The Velocity of Light."

Professor E. S. Bastin, "Some Geologic Roles Played by Bacteria."

Professor A. H. Compton, "Atoms, Electrons and Radiation."

Professor R. R. Bensley, "The Functions of the Differentiated Segments of the Renal Tubules."

One very well attended public address, by Dr. A. Hrdlicka, was given under the auspices of the Chapter.

WILLIAM W. WATSON, *Secretary*

MISSOURI

The University of Missouri Chapter of Sigma Xi is having published by the Yale University Press a series of public lectures recently delivered under its auspices. These lectures were on some aspects of the subject of Growth, various phases of which have been under intensive study at the University of Missouri for more than eighteen years. The volume, which is now in press and will appear in

August or September, is entitled "Growth." The following is the "Table of Contents:"

Contents

Chapter 1. Introduction, by W. J. Robbins, Professor of Botany, University of Missouri.

Chapter 2. An Analysis of the Course of Growth and Senescence, by S. Brody of the Dairy Department of the University of Missouri.

Chapter 3. Some Relations between Growth and Nutrition, by A. G. Hogan, Professor of Agricultural Chemistry, University of Missouri.

Chapter 4. Some Aspects of Form and Growth, by C. M. Jackson, Director of the Anatomical Institute, University of Minnesota.

Chapter 5. Physiological Factors Regulating Normal and Pathological Growth, by C. W. Greene, Professor of Physiology, University of Missouri.

Dr. Jackson, the author of Chapter 4, was elected a member of the Missouri Chapter of Sigma Xi and began his studies on growth while connected with the University of Missouri. The volume is dedicated to the memory of Henry Jackson Waters, LL.D., a pioneer in the experimental study of growth and formerly a member of the Missouri Chapter. Copies of the book will sell at \$3.00 and may be secured through M. G. Mehl, Secretary of the Missouri Chapter.

M. G. MEHL, *Secretary*

COLORADO

Papers given during the year were as follows:

"Inventions and Patents," by Warren F. Bleeker.

"Dams: History, Research and Recent Developments," Professors Eckel Gilkey and Dr. Vogt.

"Report of Flagstaff meeting of the American Association for the Advancement of Science," Miss Peabody, Dr. Johnson, Dr. Ramaley and Dean Lester.

"Psychology of Research," by Dr. Cole.

"Research and the Graduate School," by Dean Lester.

"Research and the University," by President Hellem.

CHARLES F. POE, *Secretary*

WISCONSIN

As a report of our activities for the academic year just closing I may list the addresses of the year as follows:

December 14, 1927, Professor I. M. Kolthoff of Minnesota, spoke on "An Outline and Some Recent Applications of Potentiometric Titrations." This was a joint meeting with the Wisconsin section of American Chemical Society. The February meeting was to have been addressed by Professor R. S. McCaffery of the University of Wisconsin who was to have spoken on the "Constitution of Slags," but the meeting was unavoidably and indefinitely postponed. March 27, Dr. Erwin R. Schmidt of the University of Wisconsin spoke on "Surgery and Science." At this meeting the annual election of new members was carried out. On May 2, Professor B. M. Duggar, of the University of Wisconsin, addressed the chapter on "The Significance of Some Ultra-Microscopic Virus Studies in Relation to the Nature and Origin of Life." At the annual dinner meeting May 31, held in the Park Hotel, election of officers took place and was followed by the initiation of the new members. A resolution in memory of Professor Charles I. Corp of the Hydraulic Engineering Department, who died during April, 1928, was adopted. The address of the evening was by Professor Arthur H. Compton of the University of Chicago, Department of Physics, on "What things are made of."

E. L. SEVRINGHAUS, *Secretary*

UNIVERSITY OF WASHINGTON

Six regular meetings were held during the year with the following programs:

1. "An Engineer's Impressions of Europe," by Dean Milnor Roberts, College of Mines.
2. "Investigations in Halibut Fisheries," by William F. Thompson, Director of Investigations, the International Fisheries Commission.
3. "The Use of High Pressures in Chemistry," by Dr. Stine, Director of Chemical Research at the duPont Laboratories, Wilmington, Delaware.
4. "The Treatment of Plant Diseases," by Professor J. W. Hotson, Botany Department.
5. "New Aspects of Immunity," by Professor Rachel E. Hoffstadt, Bacteriology Department.

6. "Radiotherapy," by Professor E. Victor Smith, Zoology Department.

7. "Pegmatite Mining in the Black Hills," by Dean Henry Landes, College of Science.

8. "Technical Control of Industrial Waste," by Dr. H. K. Benson, Department of Chemistry. (Presidential address.)

9. At the annual Sigma Xi-Phi Beta Kappa combined meeting, Dr. J. W. McBain of Stanford University delivered an address on "Colloids."

Nineteen members and fifty associates were elected during the year.

HEWITT WILSON, *Secretary*

WORCESTER

Meetings were held as follows:

An illustrated lecture on "Abrasives" given jointly by Drs. Lowell H. Milligan and A. Albert Klein of The Norton Co., Worcester, Mass. Both are members of Sigma Xi.

Illustrated lecture on "Metallography as Applied to the Wire Industry," given by Mr. Rea C. Helm.

Initiation Meeting and Annual Banquet. Nine members and eleven associates were initiated. Lecture by Dr. Raymond K. Morley on "An Old Problem Solved by Linkages."

At the annual meeting the election officers took place and the policies of the Chapter were discussed.

HAROLD J. GAY, *Secretary*

PURDUE

We have had a successful year at Purdue, with the following meetings:

Dinner Meeting. "Radium," Dean R. B. Moore.

"Testing Corn Stalks as a Guide in Determining Plant Food Needs," Dr. G. N. Hoffer.

Dinner Meeting. "Lightning Surges and Their Effects on Transmission Lines," K. B. McEachron of the General Electric Co., Pittsfield, Mass.

Lecture open to public. "Mysterious Abyssinia," Dr. Wilfred H. Osgood of Field Museum, Chicago, Ill.

Open Lecture. "The Structure, Movements and Feeding Habits of Vampyrella Lateritia," Dr. F. E. Lloyd of McGill University.

Initiation Dinner Meeting. "Discharge Characteristics of Submerged Jets," Mr. M. J. Zucrow, Purdue.

WILL E. EDINGTON, *Secretary*

MAYO

During the year the Mayo Foundation Chapter held five regular meetings. The list of speakers and their subjects is:

Dr. C. W. M. Pointer, Anatomist, University of Nebraska, "Early Cultures in the Missouri Valley."

Prof. Charles Culver, Physics Department, Carleton College, Northfield, Minnesota, "The Telegraphing of Pictures."

Dr. John Tate, Physics Department, University of Minnesota, "Matter and Radiation."

Prof. Edward A. Fath, Carleton College, Northfield, Minnesota, Prof. of Astronomy, "The Expanding Universe."

Dr. D. C. Balfour, Mayo Clinic, "The Indians of the Southwest."

A. E. OSTERBERG, *Secretary*

RUTGERS

Lectures before the Rutgers Chapter were given as follows:

Prof. W. Lepeschkin, of the University of Prague on "The Chemical and Physical Composition of Protoplasm and Its Changes Producing Death."

Dr. William Nyiri of the New Jersey College of Pharmacy on "Problems on Metabolism."

Dr. James Kendall, Dean of the Graduate School of New York University spoke on "Separations by the Ionic Migration Method."

W. REI ROBBINS, *Secretary*

MCGILL

The McGill Chapter has had another successful year—the meetings have all been well attended both by members and by the general public when invited to hear our special lecturers. Seven of the fourteen meetings were open to non-members. Seven regular monthly meetings were especially useful in stimulating research and bringing members from various scientific departments together in discussions of particular topics of special interest. These subjects were usually introduced by one or two members and the discussion which followed brought out many points of view. Among

the topics which gave rise to very interesting evenings were, "Ultra Violet Light;" "The Geology of Mount Royal;" "The Arizona Crater;" "The St. Lawrence Waterway and Power Scheme;" "The Development of the Organism of Sight in Animals and Man;" "Micropaleontology."

The following speakers from outside of McGill University addressed the Chapter:

Professor E. V. Appleton, F.R.S., Kings College, London, on "Radio and the Upper Atmosphere."

Professor Lafayette B. Mendel of Yale University on "Some Aspects of Animal Growth."

Dr. Bertrand Russell, F.R.S., on "Physics and Psychology."

Dr. Ancel St. John of New York City on "X-rays and Industry."

Professor Colin G. Fink of Columbia University on "Corrosion of Metals and Restoration of Bronzes."

Professor W. H. Hobbs of the University of Michigan on "Expedition to Greenland."

Professor B. P. Babkin of Dalhousie University on "Instinct as a Chain of Unconditioned Reflexes."

During the year thirty associates and members were elected to the Society. Two of our charter members retired from the University at the close of this session, Dean R. F. Ruttan, F.R.S.C., and Professor A. B. Macallum, F.R.S., both of whose efforts in making the Chapter a success have been appreciated.

Professor A. S. Eve, F.R.S., retires from the Presidency of the Chapter and the members present at the last meeting expressed their heartiest thanks to him for the great success which the Society has enjoyed under his guidance due to his keen interest and effort.

Dean H. M. Mackay was elected President to succeed Professor Eve.

DAVID A. KEYS, *Secretary*

OREGON

The Oregon Chapter gave one meeting to a discussion of the question of how the Chapter could aid in giving popular scientific lectures at the University.

One meeting was addressed by Dr. A. E. Caswell on "Bridging a Great Gulf in Science," which was a discussion of the classical wave theory, the quantum theory and the newer "Wave Mechanics" with some applications.

Another meeting was given to Geological papers by Dr. W. D. Smith and Mr. James C. Stovall dealing with studies of Eastern Oregon and particularly with the Wallowa region.

A fourth meeting considered Biological topics with a delegation from the Medical School in attendance.

W. P. BOYNTON, *Secretary*

VIRGINIA

The Virginia Chapter held two business meetings, three lectures to which special guests were invited and two lectures open to the general public.

The lecture program was as follows:

Dr. H. T. Marshall on "Ultra-violet Rays as a Factor Influencing the Extinction of Life."

Professor Jiri V. Daneš of Czecho-Slovakia, a public illustrated lecture under the auspices of Sigma Xi and the Cochran School of Geology on the "Republic of Czecho-Slovakia."

Dr. L. A. Calkins of the University of Virginia on "The Population Problem."

Professor W. S. Rodman of the University of Virginia on "Lightning Stuff."

Dr. John C. Merriam, President of the Carnegie Institution, Washington, a public lecture under the auspices of Sigma Xi, in connection with the Initiation Exercises on "What Evolution Means to the Individual."

Seven persons were elected to membership in the Society, two from the Faculty, four from the Department of Graduate Studies and one from Medicine.

BRUCE D. REYNOLDS, *Secretary*

NEW YORK UNIVERSITY

The first meeting of the academic year was a lecture by Alexander Klemin, Professor of Aeronautical Engineering in the Guggenheim School of our College of Engineering. Professor Klemin spoke on, "A New Method of Studying Stream Flow Illustrated by Photographic Exposures Taken 20,000 per Second." He described the experiments of Baron Shiba of Tokyo and showed the Baron Shiba film, the only one of its kind in America, illustrating the flow of air over various types of surfaces.

The second meeting was a public lecture given by Professor Francis Owen Rice of the Johns Hopkins University on, "Suspended Particles in Gaseous and Liquid Systems."

At the third meeting candidates recommended by the nominating committee were elected to membership. Following the business meeting research reports and demonstrations by members of the Department of Chemistry were given.

The fourth meeting was held at the New York University and Bellevue Hospital Medical College. The program consisted of a lecture sponsored jointly by the Society of Sigma Xi and the Graduate School of the University and was given by Professor George Barger, F.R.S., of the University of Edinburgh his subject being, "Thyroxin and the Thyroid Gland." Professor Barger reviewed the work of Dr. Harington and himself on the analysis of thyroxin, the discovery of its structural formula, and of its later synthesis. Following the lecture the recently elected members were initiated, President Senior presiding.

At the last opening meeting of the year a lecture was given on, "Connections between Spectroscopy and Chemical Reactions," by Dr. J. Franck, Professor of Experimental Physics at Göttingen University, Germany.

HORACE W. STUNKARD, *Secretary*

ARIZONA

The lecture program during the year was as follows:

Dr. H. Gunthorp, "The Effect of Thyroid Feeding on Tadpoles."

Dr. W. P. Taylor, "Notes on the Relation of Biology to Forest and Range Management."

Prof. J. C. Clark, "Super Power."

Dr. A. F. Hemenway, "Sap Conduction in the Cactaceae and Other Desert Plants."

Mr. J. F. Breazeale, "Color Schemes in Cactus."

Dr. O. C. Magistad, "Electrodialysis of Soil Compounds."

Dr. H. B. Leonard, "Problems Produced by the Intersection of Simple Surfaces."

Prof. R. S. Hawkins, "Effect of Irrigation on Length and Strength of Cotton Lint."

Dr. R. B. Streets, "Graphiola Leaf Spot of the Date Palm."

Dr. L. E. Roberts, "The Effect of Slag Composition upon Copper Losses in Smelting."

Dean J. J. Thornber, "Some of Arizona's Important Introduced Plants."

Dr. Margaret Cammack Smith, "The Baking Strength of Arizona Early Baart Wheat as Correlated with Its Physical and Chemical Properties."

Dinner and initiations: Dr. William Morris Davis, formerly Harvard, now also Arizona; Dr. Walter Soller, Asst. Prof. Physics, Univ. of Arizona.

Address by Dr. Davis on "Coral Structures."

H. B. LEONARD, *Secretary*

MARYLAND

Since its installation on March 2, the Maryland Chapter has engaged in the following activities.

Business meetings were held March 16, April 23 and May 8. Seventeen individuals were elected as members, two as alumni members and ten as associates. Four alumni members of other chapters were invited to become active in the Maryland Chapter and all accepted. The Chapter now numbers 41 members, 5 alumni members and 10 associates.

A public lecture sponsored by the Chapter was given by Dr. F. C. Whitmore, Chairman of the Division of Chemistry of the National Research Council. His subject was "The Habits of the Atoms."

At the annual initiation, twenty-nine members and associates were initiated. Following the initiation banquet, held on the same date, there was an inspiring address by Dr. William Crocker, Director of the Boyce-Thompson Institute for Plant Research on the work of that organization.

A healthy and active future for the chapter seems assured.

MALCOLM M. HARING, *Secretary-Treasurer*

SIGMA XI CLUBS

OKLAHOMA

The Sigma Xi Club of Oklahoma had a most successful year. At the six regular meetings of the Club the following papers were given:

"Animal Populations," Dr. A. O. Weese.

"A Study in Urban Geography," Mr. C. W. Thornthwaite.

"Flower Dust," Dr. P. B. Sears.

"The Foundations of Geometry," Dr. G. E. Raynor.

"Can Monkeys Count?" Dr. Herbert Woodrow.

"Synthetic Perfumes," Dr. G. C. Ruhle.

At the annual Sigma Xi dinner, Professor George A. Baitzell of Yale University was an honored guest. He gave an interesting illustrated lecture, "Coagulation in Relation to Tissue Formation."

In April the Sigma Xi Club joined the Phi Sigma honorary biological fraternity in giving a dinner in honor of Doctor Aven Nelson, a distinguished authority on Rocky Mountain botany and President Emeritus of the University of Wyoming. Following the dinner Doctor Nelson delivered an interesting lecture entitled, "Theistic Evolution."

At the last regular meeting of the Club it was voted to make our fourth annual contribution of \$25 to the Alumni Research Fund.

WILLIAM SCHRIEVER, *Secretary*

SOUTHERN CALIFORNIA

Meetings of the Club were held as follows during the year:

The annual business meeting. On this occasion Dr. Loye H. Miller of the University of California at Los Angeles gave an illustrated address on "Fossil Birds of the Pacific Coast."

At a second meeting, Dr. E. D. Merrill, Dean of the College of Agriculture, University of California, gave an illustrated address on "The Correlation of Present-day Geographic Distribution of Plants and Animals with the Geologic History of the Malay Archipelago."

The third meeting was addressed by Dr. Alexander Goetz, of the California Institute of Technology, on "Modern High Vacuum Physics."

H. DE FOREST, *Secretary*

CARLETON COLLEGE

Six program meetings were held during the year as follows:

"Electro-Chemistry in the Industries," by Dr. C. S. Mann (University of Minnesota).

"A Preliminary Report on an Original Photographic Study of Musical Sounds," by Dr. C. E. Culver.

"A Simple Mathematical Idea and Its Implications," by Dr. C. H. Gingrich.

"Crystals and Crystal Structure," by Dr. H. P. Klug.

"News from Mars," by Dr. E. A. Fath.

"Diffraction of X-Rays in Liquids," by Dr. R. M. Morrow.

Members of Sigma Xi of St. Olaf College are coöperating to make the work of the club a greater success.

H. P. KLUG, *Secretary*

PITTSBURGH

A total of 30 meetings have been held, distributed as follows: 18 general, 4 joint, 2 special, 3 business and 3 executive meetings. Successful dinner parties were held with the special meetings. The programs for the public meetings were usually given by the various departments and individuals of the University presenting their own recent research work. The joint meetings were the occasions of the addresses of Dr. Baly, Dr. Bogart, Dr. D. C. Miller and Dr. A. H. Compton to various local scientific societies. The special meetings were the occasions of the address of Dr. B. S. Hopkins on "Illinium" and the visit of Dr. F. K. Richtmyer of the National Executive Committee. The maximum attendance was about 80 and the minimum about 25, the average being about 35 persons, including officers.

There were 46 members in 1923; 66 in 1925 and now there are not less than 85 Sigma Xi Alumni on the staff of the University.

RICHARD HAMER, *Secretary-Treasurer*

WYOMING

The dates and subjects of the meetings of the Wyoming Sigma Xi Club follow:

Prof. C. A. Koepke, "Precise Measurements and Precision Instruments."

Dr. June E. Downey, "Handedness."

Dr. Wm. F. Durand, of Stanford University, "The Interdependence of Progress and Research."

Dr. O. K. Stark, "Anaphylaxis and Allergy."

Dr. Louis Turner, of Stanford University, "Intelligence Tests and Their Uses."

Dr. S. H. Knight, "The Origin of the Gypsum Deposits of the Rocky Mountain Region."

Mr. Allen McIntosh, "A Note on Trematode Parasites of Birds (with demonstrations)."

Dean Edward Ellery, of Union College, "History of Sigma Xi."

O. H. RECHARD, *Secretary*

FLORIDA

The first called meeting was addressed by Dr. W. A. Murrill, formerly of the New York Botanical Gardens who spoke on "Mushrooms, Edible and Poisonous."

Other meetings with lecturers and topics were as follows:

Dr. L. H. Pammel of Iowa State College on "Fundamental Training in Relation to Scientific Research."

Dr. L. R. Jones, Prof. Plant Pathology of the University of Wisconsin, an illustrated talk on "Some Problems Concerning Plant Diseases and Disease Control."

Dr. Benton, Physicist, Mr. Goodwin, Chemist, Mr. Cody, Botanist, Mr. Carver, Geneticist, "A Discussion of Chlorophyll and Its Properties."

Mr. Geo. H. Peters of the U. S. Naval Observatory, Washington, D. C., an illustrated lecture on "The Sidereal Heavens."

O. C. BRYAN, *Secretary*

SOUTH DAKOTA

The Club held several meetings during the year with speakers from other institutions, and for discussion by its members on recent investigations in science, both general and local. Among other speakers were Dr. Raymond J. Pool, head of the department of Botany of the University of Nebraska and Dean Ellery of Union College.

H. C. ABBOTT, *Secretary*

ALABAMA

The Club has recently been organized and held several meetings. Papers have been given as follows:

"Certain Brown Iron Ore Mines in Alabama," Dr. George I. Adams.

"The Influence of Benzyl Benzoate on Nitrogenous Metabolism," Dr. George T. Pack.

W. P. Orr, *Secretary*

CHAPTER OFFICERS
LIST FURNISHED BY THE SECRETARIES OF THE CHAPTERS

| CHAPTER | PRESIDENT | VICE-PRES. | SECRETARY | TREASURER |
|------------------------------------|-----------------------|----------------------|-------------------------|-----------------|
| Cornell..... | O. A. Johannsen | F. O. Ellenwood | W. A. Hagan... | A. J. Eames |
| Rensselaer..... | L. W. Clark.... | G. K. Palsgrove | E. M. Clark.... | W. J. Williams |
| Union..... | P. I. Wold..... | J. W. Mavor.... | C. B. Hurd..... | C. B. Hurd |
| Kansas..... | E. B. Stouffer.. | H. H. Lane..... | J. D. Stranathan | H. E. Jordan |
| Yale..... | J. I. Tracy..... | S. R. Brinkley | A. F. Hill..... | L. E. Seeley |
| Minnesota..... | J. A. Harris.... | K. W. Stenstrom..... | J. W. Buchta.. | W. S. Cooper |
| Nebraska..... | M. H. Swenk.... | N. A. Bengtson | E. N. Andersen | M. G. Gaba |
| Ohio..... | W. J. McCaughey | Paris B. Stockdale | P. W. Ott..... | F. A. Hitchcock |
| Pennsylvania.. | T. D. Cope..... | R. H. True.... | W. H. Barton, Jr. | W. R. Taylor |
| Brown..... | J. W. Wilson .. | A. E. Watson... | C. W. Miller... | C. R. Adams |
| Iowa..... | J. T. McClintock..... | J. F. Reilly... | Lee Travis.... | G. W. Martin |
| Stanford..... | C. L. Alsberg.. | G. M. Smith... | G. R. Harrison | G. R. Harrison |
| California..... | E. D. Merrill.. | C. W. Porter... | S. K. Allison.. | F. H. Cherry |
| Columbia..... | D. W. Johnson.. | R. S. Woodworth | P. F. Kerr.... | P. F. Kerr |
| Chicago..... | Julius Stieglitz | H. G. Wells.... | M. E. Hanke... | M. E. Hanke |
| Michigan..... | H. M. Randall.. | H. F. Lewis.... | C. E. Guthe... | R. C. McAlpine |
| Illinois..... | M. L. Enger.... | W. H. Rodebuch | A. C. Bevan... | T. H. Frison |
| Case..... | Anthony Jenkin | T. D. Owens... | J. R. Martin... | T. M. Focke |
| Indiana..... | F. C. Mathers.. | J. E. Switzer... | A. C. Kinsey.. | Paul Weatherwax |
| Missouri..... | H. D. Hooker.. | M. P. Weinbach | M. G. Mehl.... | H. H. Charlton |
| Colorado..... | W. B. Pietenpol | Clarence Eckel | C. F. Poe..... | F. S. Bauer |
| Northwestern.. | A. A. Day..... | F. D. Barker... | A. J. Walcott... | Sara I. Lewis |
| Syracuse..... | H. N. Eaton... | R. S. Boehner.. | Mrs. M. N. Harwood..... | C. C. Forsaith |
| Wisconsin..... | G. W. Keitt.... | H. A. Schuette | R. A. Brink... | A. K. Lobeck |
| University of Washington | R. C. Miller... | Hewitt Wilson | G. E. Goodspeed | V. Sivertz |
| Worcester..... | M. E. Smith.... | G. H. MacCullough | H. J. Gay..... | Harris Rice |
| Purdue..... | E. B. Mains.... | R. B. Wiley... | W. E. Edington | H. MacGillivray |
| Washington University... | P. A. Shaffer... | A. S. Langsdorf | H. Lee Ward.. | L. F. Thomas |
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| Texas..... | H. J. Muller... | H. L. Lochte... | O. R. Chambers | Arnold Romberg |
| Mayo Foundation..... | Chas. Sheard.. | H. E. Robertson | A. E. Osterberg | A. E. Osterberg |
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| N. Dakota..... | A. G. Leonard.. | E. E. Harris... | E. A. Baird.... | E. A. Baird |
| Iowa State College (formerly Ames) | R. M. Hixon... | C. J. Drake.... | O. W. Park.... | A. L. Bakke |
| Rutgers..... | R. C. H. Heck.. | Richard Morris | W. R. Robbins.. | T. J. Murray |
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| Idaho..... | J. A. Kostalek | C. W. Hunderford | J. H. Johnson.. | H. P. Magnuson |
| Swarthmore.... | W. R. Wright.. | Arnold Dresden | H. J. Creighton | H. J. Creighton |
| Oregon..... | E. H. McAllister | G. E. Burget | Ethel Sanborn | H. G. Tanner |
| Virginia..... | L. G. Hoxton.. | W. A. Kepner.. | J. K. Roberts.. | J. K. Roberts |

CHAPTER OFFICERS (Continued)
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| Maryland | C. O. Appleman | E. C. Auchter.. | M. M. Haring.. | M. M. Haring |
| Kansas State College | E. C. Miller ... | Margaret Justin | C. W. Colver... | G. E. Raburn |
| Col. of Medicine Univ. of Illinois..... | D. J. Davis | | W. H. Welker.. | I. Pilot |

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| Duluth..... | | | E. W. Kelly.... | |
| Carleton College..... | E. A. Fath | E. O. Ellingson | H. P. Klug ... | H. P. Klug |
| University of Denver..... | T. R. Garth.... | R. E. Nyswander | E. A. Engle.... | W. H. Hyslop |
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| West Virginia University.. | A. M. Reese.... | J. H. Gill..... | R. P. Davis.... | |
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| University of Wyoming.... | Aven Nelson... | J. A. Hill. | O. H. Rechard. | O. H. Rechard |
| University of Florida..... | J. R. Benton... | O. F. Burger.. | O. C. Bryan ... | O. C. Bryan |
| University of Rochester... | J. R. Murlin... | | H. L. Alling.... | H. L. Alling |
| Colorado Agricultural College..... | G. T. Avery... | L. D. Crain.... | L. W. Durrell.. | L. W. Durrell |
| State College of Washington | C. C. Todd.... | | Hannah Aase | |
| University of South Dakota | E. P. Rothrock | | H. C. Abbott.. | H. C. Abbott |
| Louisiana State University... | L. J. Lassalle .. | H. V. Howe... | E. H. Behre... | E. H. Behre |
| University of Alabama.... | E. B. Carmichael..... | G. I. Adams... | W. P. Ott..... | W. P. Ott |

OFFICIAL ANNOUNCEMENTS

All insignia of the Society are available only through the office of the national secretary. Orders for these insignia are issued through chapter secretaries, and must be **prepaid**. Information about styles and prices may be obtained from chapter secretaries or the national secretary.

PRINTED BLANKS

The General Convention has instructed the secretary to forward to chapters under the following stipulations:

Membership Certificates, stamped with the great seal of the Society. In packages of fifty prepaid, on advance payment of \$2.50 for each package. Please specify carefully whether for active or associate members.

Index Cards, for members and associates. *Gratis*.

Chapter secretaries are requested to fill out these cards carefully giving PERMANENT addresses of the members, and return to the national secretary.

A few copies of the Quarter Century Record are available at \$2.50 each.

Copies of the Constitution are available at 7 cents each.

SIGMA XI BANNERS

Chapters may obtain Sigma Xi Banners at the following prices:

Size 3 x 5—\$ 8.00

4 x 6— 12.00

5 x 8— 20.00

CHANGES OF ADDRESS

All changes of address and all other correspondence should be addressed to the secretary of Sigma Xi, Edward Ellery, Union College, Schenectady, N. Y.

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